mistaken for pyrites. Upon subjecting them, however, to more rigid examination than they had previously received, Dr. Wollaston ascertained them to be titanium in its metallic state. He found them not only harder than pyrites, but so hard as to scratch glass, and even agate. They are neither acted upon by nitric, sulphuric, nor muriatic acids; nor are they dissolved by nitro-muriatic acid. They are infusible before the blowpipe, but become superficially oxidized, and borax restores the cleanliness of their surface, by dissolving the oxide. By nitre they are rapidly oxidized; and by combining its action with that of borax, they may be entirely dissolved. The fused mass is soluble in muriatic acid; and from this solution the alkalies precipitate a white oxide, insoluble in pure and carbonated alkalies. When evaporated, the excess of muriatic acid may be driven off, and a soluble muriate remains, in a state favourable for exhibiting the leading properties of titanium. Infusion of galls produces in this solution the characteristic red precipitate; prussiate of potash occasions one of similar colour, which differs from prussiate of copper by inclining to orange instead of purple, while prussiate of uranium is rather brown than red.

Although the crystals are imbedded in sulphuret of iron, Dr. Wollaston found in them neither iron nor sulphur. That they are in the metallic state, is proved by the perfection with which they conduct a feeble degree of electricity. They did not unite with tin, lead, silver, or copper. From their extreme infusibility, Dr. Wollaston thinks that they have not been formed by crystallization in cooling from a state of fusion, but have received their successive increments by reduction of the oxide dissolved in the slag around them,—a mode of formation to which we must have recourse for conceiving rightly the formation in nature of many other metallic crystals.

On the Difference of Structure between the Human Membrana Tympani and that of the Elephant. *By Sir* Everard Home, *Bart. V.P.R.S.* Read December 12, 1822. [*Phil. Trans.* 1823, *p.* 23.]

In an elephant three weeks old, the membrana tympani was of an oval form, $1\frac{1}{2}$ inch long, and $1\frac{1}{8}$ broad. The muscular fibres lie upon its inner surface, and terminate by an attachment to the point and two sides of the malleus, so that one portion of the fibres is short, and the other more than double their length. From this structure the elephant cannot adapt its ear to musical sounds in the same manner the human ear does; but in Sir Everard's opinion, it is enabled by the long fibres to hear sounds at a great distance. In regard to musical sounds, high notes scarcely excite its attention, but it listens to the lower ones with apparent satisfaction. In neat cattle, and in the deer, the membrana tympani is oval, and the structure approximates to that in the elephant. In the horse, the hare, and the cat, the handle of the malleus lies in the middle line, so that the fibres on the two sides are equal, and the organ appears similarly constructed in the whole of the feline tribe.